

## A Natural History of the Sixgill Shark, *Hexanchus griseus*

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### Extended Abstract

Recent recreational harvest of sixgill sharks (*Hexanchus griseus*) in Puget Sound has drawn attention to the fact that little is known regarding this shark's biology and natural history.

A putatively sluggish shark encountered at great depths (Hart, 1973) the sixgill in Puget Sound and the contiguous waters of British Columbia is occasionally taken by commercial and sport fishers at depths of less than 20m (Greg Bargman, personal communication). This shallow water behavior is considered unique and perhaps places the local population at risk of overexploitation. Invoking the precautionary principle, the Washington State Department of Fish and Wildlife enacted emergency legislation prohibiting the landing of sixgill sharks for recreational purposes. Similar restrictions are being considered for commercial harvest.

In an effort to promote sixgill shark research, a collaboration of university, public and private, non-governmental, agencies has been created. The University of Washington, Washington State Department of Fish and Wildlife, Seattle Public Aquarium, Point Defiance Public Aquarium and Vancouver Aquarium Marine Science Center are reviewing the current literature and anecdotal information regarding the sixgill shark in preparation for directed research.

Sixgills are considered one of the earliest sharks dating from the Triassic period about 200 million years ago. They are characterized by having six pairs of gill slits and a single dorsal fin and six large, broad, sawlike teeth on each side of the lower jaw (Castro 1984). Color is dark gray or brown with lighter or whitish undersides.

The sixgill is a large shark reaching measured lengths to at least 450 cm and undocumented reports to 26.5 feet.

The sixgill shark has worldwide distribution in deep temperate and tropical waters. Reports from Puget Sound suggest this shark is found in shallow water year round and that the population is composed primarily of juveniles (Greg Bargman personal communication).

Estimates of population size and abundance are confusing. Ebert (1986) states: "Their apparent lack of abundance off California." But Compagno (1984) reported this species as commonly taken locally by line gear, gillnets, traps and bottom trawls. The flesh is utilized fresh, frozen, dried salted for human consumption and for fishmeal and oil.

Sixgill sharks are ovoviparous with females reaching sexual maturity between 430 and 450 cm, giving birth to as many as 108 pups (Hart 1973). Male sixgills are believed to reach sexual maturity at approximately 340 cm (Rick Martin personal communication).

Analyses of sixgill stomachs indicate they ingest a variety of fish and invertebrates. The most common item is dogfish (*Squalus acanthias*). Other prey includes lingcod, prickly shark, ratfish, hake, whale blubber and pinniped remains (Ebert 1986).

Little is known about this shark's behavior. Its reputation as a sluggish, slow moving bottom dweller has been disputed. Rick Martin (personal communication) states that sixgills demonstrate remarkable speed and agility when capturing prey. The presence of marine mammal remains in the stomach contents of sixgills also suggests that these sharks may play a larger role in the ecological dynamics of the shared inland sea of Canada and the United States than once believed.

## **References**

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